

國立暨南國際大學九十二學年度轉學生入學考試試題

第 3 節微積分適用：(財金系二 232 )

(本試題共 1 頁，第 1 頁)

- 考生注意：1. 依次序作答，只要標明題號，不必抄題。  
 2. 答案必須寫在答案卷上，否則不予計分，並限以藍黑色筆作答。  
 3. 試題隨卷繳回。(餘請詳閱試場規則)

計算題，每題 10 分，共 100 分。須詳列計算過程

1. Determine the value of  $c$  so that  $f(x)$  is continuous on the entire real

line if  $f(x) = \begin{cases} x^2 - x & x \leq 3 \\ \frac{c}{x} & x > 3 \end{cases}$

2. Differentiate:  $f(x) = \frac{x^2 - 2}{x^2 + 2}$

3. Find all open intervals on which the function is

increasing:  $f(x) = 3x\sqrt{x+2}$

4. Find the absolute minimum and absolute maximum for

$f(x) = \frac{10}{(x^2 + 1)}$  on the interval  $[-1, 2]$

5. Find  $\lim_{x \rightarrow \infty} \left( \frac{2x}{x+2} + \frac{x}{x-1} \right)$

6. Find  $\frac{dy}{dx}$  if  $y = \ln \frac{\sqrt{x}}{5-x}$

7. Evaluate:  $\int_1^e \frac{5}{x} dx$

8. Find the distance between the point  $(1, -2, 3)$  and the plane  $3x - 4y + 2z - 1 = 0$ .

9. Find the least squares regression quadratic for the points  $(1, 4), (3, 4), (-1, -3), (7, -1)$ .

10. Determine the convergence or divergence of the following series, and

state the test used:  $\sum_{n=1}^{\infty} \frac{2 \cdot 4 \cdot 6 \cdots 2n}{n!}$